ABSTRACT OF THE DISCLOSURE

[80] A multi fiber optic medical probe comprises at least two optical fibers. There are side-firing terminations for the at least two optical fibers. Further, beam-shaping apertures are provided for controlling light propagating between the side-firing terminations and a region lateral to the probe. The provision of the at least two optical fibers allows for multiple optical signals to be transmitted to and/or from the target area within the patient. The side-firing terminations allow for the interrogation of regions that are adjacent to the probe, *i.e.,* extending in a direction parallel to the insertion direction or longitudinal axis of the probe. The beam shaping apertures are provided for controlling light propagating between the side-firing terminations and the region lateral to the probe, in order to control the shape of the emitted beam and also, the direction from which light is collected.